TRAIL & Landscape

A PUBLICATION CONCERNED WITH NATURAL HISTORY AND CONSERVATION

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Trail & Landscape

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The Ottawa Field-Naturalists' Club

— Founded 1879 —

President
Daniel F. Brunton

Objectives of the Club: To promote the appreciation, preservation and conservation of Canada's natural heritage; to encourage investigation and publish the results of research in all fields of natural history and to diffuse information on these fields as widely as possible; to support and co-operate with organizations engaged in preserving, maintaining or restoring environments of high quality for living things.

Club Publications: THE CANADIAN FIELD-NATURALIST, a quarterly devoted to reporting research in all fields of natural history relevant to Canada; TRAIL & LANDSCAPE, providing articles on the natural history of the Ottawa Valley and on local Club activities five times a year; and THE SHRIKE, a bimonthly newsletter on birdwatching in the Ottawa-Hull area, available by separate subscription.

Field Trips, Lectures and other natural history activities are arranged for local members; see "Coming Events" in this issue.

Membership Fees: Individual (yearly) $17 Sustaining (yearly) $40
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Membership application, correspondence:
THE OTTAWA FIELD-NATURALISTS' CLUB
Box 3264, Postal Station C
Ottawa, Ontario K1Y 4J5

Information:
(613) 722-3050

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Editorial Address:
Joyce M. Reddoch, Editor
548 Rivershore Crescent
Gloucester, Ontario K1J 7Y7

Welcome, New Members

Ottawa Area

Lambert J.C. Beaubien
Bette Blore
Mrs. A.E. Bourguignon
Morris Brunton
Brian Coleman
S. Merridy Cox
Laurence C. McClelland
Suzanne Mynott
Robert Reside & Family
Pierce Ronan
Nesta E. Scott-Hankey
Siddhartha R. Thakar
Margaret Trost
V.M. Walley
Isabel Ward
Glenn T. Wright

Other Areas

Blake Maybank
Rocky Harbour, Newfoundland

Jocelyn Webber
Mississauga, Ontario

October, 1983

Barbara Campbell, Chairman
Membership Committee.

Attention All Members:

1984 membership fees are now due. Please renew promptly; late renewals entail extra work and add to your Club's expenses.

Members who have not renewed their membership by February 1st will not receive any more issues of *Trail & Landscape*. Missed copies will be available to those who renew late at a cost of $1.00.

Council Report

Bill Gummer

The Council continues to keep informed on developments across Canada: plans for an oil-port in the Beaufort Sea; potential damage to the habitats of the Niagara Escarpment; decision to erect a new transmission line from Kingston to Ottawa; and, on the more local scene, Alfred Bog. Concern remains strong for the future of the Bog, and thought is being given to a baseline study in the section now owned by the Club. The trust fund managed by the Club continues to grow.

Peter Walker has resigned from the Council, the resignation being accepted with many expressions of regret.

The Macoun Club is moving into new quarters at the National Museum of Natural Sciences. It was suggested that the Macoun Club is at the point where, because of changes in leadership, of new management at the Museum, and of questions of access by members to Club property, that its *modus operandi* should be discussed by the joint sponsors - the OFNC and the NMNS. The value of the Macoun Club is clear, and its achievements over many years should be better recognized. Its future plans should be reviewed and publicized, even if no change is foreseen.

At the October 17 meeting of the Council, Michael Runtz of Arnprior presented a description of a section of cedar swamp near Stewartville on the Madawaska River. The area, which harbours 18 species of orchids and is rich in ferns, is in danger of being lost to development. Through much effort, Michael has arranged for support for purchase of the area, given a body to manage it. There are questions about its value relative to officially designated special areas in eastern Ontario. The Council is interested in what develops, and the sort of help that the Club could or should offer needs better definition. As a result, an *ad hoc* group has been set up to review possible OFNC roles in land purchase.

Correction to *Early Botanizing in Bytown*

November/December, 1983, issue, page 248: The last sentence in the second paragraph should read, "He described 170 species of well-known plants, many of them trees, giving English and French common names, contemporary Latin binomials and identifying characteristics, which he probably translated from F. Pursh's *Flora Americae Septentrionalis* (1814)". Our apologies to Jim Neelin for garbling his text.

President's Message

The Ottawa Field-Naturalists' Club has been extraordinarily fortunate to have a uniquely talented and committed group of volunteers to maintain and improve the wide variety of Club programs and services. Without them we simply would not be the nationally recognized organization that we are. I'm very proud of that crew and their achievements. There's a catch to all this, however. Many of those individuals "putting out" for the Club have been doing so for years, and, as the Club's activities have become more diverse and more time-consuming, many of these people are getting tired. A number of Club workers are, on balance, reaching the saturation point. As a result, we have made a conscious decision not to take on new initiatives without new resources (human and otherwise) and hope that a calmer period in OFNC history is upon us.

The Club needs your help. We especially are looking for interested individuals to serve on the Council (and/or on Council committees) who are willing to take on some of the tasks presently being shouldered by too few. We need people who are interested in advancing the Club's profile in the community so that membership increases and our messages are more clearly communicated. We need people to help in fund-raising so that we can maintain the very high individual reward for belonging to the Club. We need people to help in maintaining and improving some of the existing services to members and the community (such as the Birds Committee programs, the Macoun Field Club and Club administration). Fundamentally, we need people who will reinforce our present workers and who are willing to get involved directly in the running of this magnificent outfit.

And magnificent it certainly is! In looking back on two years as President, I marvel at what the Council and the membership at large has achieved in that time - to say nothing of the achievements of the previous decade! We've seen the strong and expert conservation voice of the Club become even stronger and more expert. We've taken on major conservation issues with vigour and skill, and have approached these issues with new and effective initiatives. The Alfred Bog Trust Fund, the purchase of land there, the lottery, the hiring of lawyers to represent our concerns at Ontario Municipal Board hearings - these all reflect the new seriousness and determination of our conservation effort. We've involved the media much more effectively than we had in the past with this and other issues, and that will pay dividends for years to come. Perhaps most satisfying personally is the degree of respect with which our opinions are considered within government circles. We are now routinely consulted by

some government bodies. When we write governments on particular issues, we receive personal responses from the appropriate minister (or prime minister). The Club's voice has become recognized across Canada as a credible and significant one, and this has already had positive results in such cases as the Raccoon Dog issue, siting of the 1988 Olympic Games, Ministry of Natural Resources land use planning, and so forth.

I'm also pleased to see the Club's Publication Policy completed. (It will be published soon in *The Canadian Field-Naturalist*.) This is a major achievement and will serve us well for years and years, and will undoubtedly be used by others as a model for their organizations. Our nationally-significant publications program is on a sound organizational and philosophical footing and should continue to excel. The Club has contributed also to those beyond our immediate bounds by participating actively in the revitalization of the Federation of Ontario Naturalists. Our hosting of what was by all accounts the best-ever FON Conference is an important part of that, as is the increased level of involvement in the Federation's effective conservation program.

It's because I am so impressed by those individuals who have perennially been the backbone of the Club that I take such satisfaction in seeing it acknowledging these people through the new system of OFNC Awards. They are rapidly becoming - as they should be - the social focus of the Club.

These years as OFNC President have been a real education (as well as a significant honour), and I appreciate the opportunity that you, the membership, have provided me. I hope to continue to do my bit for the Club in other capacities for years to come. In closing, I should note that there are literally dozens of people whom I should thank for assistance and support during my terms, but I will confine this public "thank-you" to two people who rarely receive such acknowledgement. Dorothy Liddiard typed the majority of my communications over the past two years (and a sizeable mountain it was too!) and did so with skill, accuracy and efficiency. My job would have been extremely difficult without her cheerful assistance. In the same vein, I was aided immeasureably by Frank Pope, who is arguably the best Recording Secretary ever; his excellent record-keeping and superb organization saved many, many hours of labour and prevented a great deal of frustration and confusion. My sincere thanks to Frank, Dorothy, the Council and to you, the membership, for your help and encouragement over the past two years.

Dan Brunton

The 1984 Fee Increase: We're Still the Best Deal Around!

Dan Brunton
President

Concern has been expressed about the increase in OFNC fees in 1984, with some people suggesting that the $4.00 increase (to $17.00 for individuals) is perhaps too great a jump for a single year. To answer that very legitimate concern and to demonstrate that The OFNC remains an extraordinary (and unique) membership value, I've pulled together some figures for your consideration.

The critical fact is that to raise the fees by any less than $4.00 would have meant a deficit of up to $4,000 in 1984 and even more in following years. The Council is looking into ways of cutting costs, but as a very large proportion of our expenditures are channeled into Club publications, we have few short-term options. To absorb the increased costs without a fee increase would have meant a drastic reduction in other Club programs. It is also important to realize that OFNC membership has been UNDER-priced for some years. Let me demonstrate:

Five years ago, in 1978, the fee for individual membership was $10. and total Club expenditures amounted to about $42,000. In 1984, our fee will be $17. (a 70% increase since 1978) while our expenditures are projected at about $85,000 (an increase of about 102%!). Our membership rose by only about 10% in that period. The tremendous increase in publishing costs in Canada has hurt us and contributes significantly to *Trail & Landscape* costs rising by 100% in this period and *The Canadian Field-Naturalist* by 60%. As well, the higher level of conservation and members' services programs in the Club has increased administrative costs by 230%. What all this means is that even with the fee increase we will be doing much *more* in 1984 than we were in 1978, with *less* money than was available five years ago (in real terms). That is a tremendous compliment to the cost efficiency (and ingenuity!) of the people responsible for the many Club programs.

On top of all that, consider this if you will; it costs $35 to produce one set of *The Canadian Field-Naturalist* and *Trail & Landscape* (to which each member is entitled). This is obviously far more than the membership fees cover. The revenue generated by these publications is the single largest factor in keeping the membership/subscription cost to less that 50% of the production cost. In addition to this publication bargain, each member is part of the national conservation role of The

Ottawa Field-Naturalists' Club, and contributes to the tremendous education value of the excursions and meetings of the Club ... and so on.

The Ottawa Field-Naturalists' Club is the best "deal" for the naturalist's dollar in Canada and would be so even with a $30 or $40 membership fee. The Club remains well below the cost level of the other major naturalist organizations (such as the Canadian Nature Federation ($20.) and the Federation of Ontario Naturalists ($21.), to name but two).

While a $4. increase may seem a lot in one year at first glance, when it is put into the broader context of the recent past, the near future and the Club's outstanding value, I think you will see that it is a very reasonable amount after all.

Ice Crystals over the Creek

These thin, platy crystals were found sticking out over the water surface on the small creek that drains the beaver pond by the Jack Pine Trail. The largest growth (lower right) is about 25 cm long. Their size was startling, and they projected from the snow bank a couple of cm above the existing water surface.

Bill Gummer

Raccoon Dogs in North America: The Final Chapter

Roger Taylor

In two previous articles (*Trail & Landscape* 15(1): 4-6 (1981) and *ibid* 17(2): 48-50 (1983)), I outlined the Club's involvement in the successful battle to remove the Raccoon Dog threat to the Canadian environment. This non-native canine species would have become a major pest if it had escaped from a fur farm. At the end of the second article, I mentioned that attempts were being made to negotiate the removal of these animals from fur farms in the United States. Of course, if these attempts were not successful, there was still a threat to our environment through escapees south of the border. So it should come as no surprise that the Club's Conservation Committee decided to look into what was happening to Raccoon Dogs in the United States.

We learned from Joe Bryant of the Canadian Wildlife Service that there were Raccoon Dogs on fur farms in Illinois and Wisconsin, and in a wildlife menagerie in northern Minnesota. He also indicated that there appeared to be some reluctance on the part of state governments to negotiate a settlement similar to that arranged in Canada, that is, compensate the farm for destroying the animals. So we decided to write to both local and state Audubon (or equivalent) societies to alert them to the potential dangers to wildlife and agriculture from Raccoon Dogs and to urge them to put pressure on their respective state governments to remove them. As it turned out, we need not have worried.

From the Minnesota Ornithologists' Union we learned that on May 6, 1983, the Minnesota Department of Natural Resources paid a fur farm owner $15,000 and took possession of all 37 live Raccoon Dogs known to be in Minnesota. All but two were destroyed, and those two were donated to the St. Paul Como Zoo on condition that they be surgically sterilized. Also, importation or sale of Raccoon Dogs in Minnesota is now prohibited by regulation. In the same letter we also learned that all Raccoon Dogs formerly in Wisconsin had been sold to fur farms in Illinois.

In a letter dated August 10, 1983, the Illinois Audubon Society informed us that the Illinois General Assembly had passed a bill making possession of Raccoon Dogs illegal and that the bill was at that time on the Governor's desk. A "hold" had been placed on those owned by a fur farm in Freeport, Illinois, as

well as those in the northeastern part of the state, the latter being the ones transferred from Wisconsin. They indicated that all these animals would be confiscated and destroyed, and the owners compensated.

It appears then that all known Raccoon Dog fur farms in the United States have had their animals destroyed. Also, all import, acquisition or transportation of the animals is prohibited in the United States or its possessions (Federal Register, 47 (242) 56360-56362 (December 16, 1982)). Hence we can conclude that a co-operative effort between many agencies in both countries has successfully removed a potentially damaging environmental threat. Also, the settlement negotiated by the Canadian Wildlife Service clearly provided a model for similar settlements negotiated by their counterparts in the United States. Now, if we could just get the same degree of co-operation on the Acid Rain problem, we would be in great shape.

Recent Bird Sightings

Bruce M. Di Labio

The months of September and October were relatively sunny and mild. This weather produced exceptionally good conditions for early fall birding. A very dry summer reduced the water level in many of the small ponds in the area, forcing the puddle ducks to congregate in only a few areas. The low water also exposed more mud, which attracted shorebirds. Some landbirds, too, took advantage of the weather by staying late or straying into the area.

Among all the ducks at Shirleys Bay this fall was a large number of Shovelers, the highest count being 156 on October 11. Also there on October 29 and 30 was a female-plumaged King Eider, a very early record for the Ottawa area.

There were several Peregrine Falcon sightings this year at Shirleys Bay, Ottawa Beach, the Experimental Farm and Russell. One, and sometimes two, Peregrine Falcons were observed for several evenings until October 24 roosting on the Coates Building in Tunney's Pasture in Ottawa's west end.

A great variety of shorebirds appeared this year with 26 species recorded in September and 23 in October. The most unusual were two sightings of a Piping Plover, one at Ottawa Beach on September 7, the other at Shirleys Bay on October 27. Other notables were Long-billed Dowitcher, Buff-breasted Sandpiper, Hudsonian Godwit and Red Phalarope at various dates and locations around Ottawa. In terms of shorebirds, the Russell Sewage Lagoon proved to be one of the best places this year, rivalling Shirleys Bay in variety.

There were many interesting gull sightings this fall. Since October 19, there have been five adults and one third-year Lesser Black-backed Gull at dumps around the Ottawa-Hull area. A first winter Laughing Gull, the fifth record for the area, was found at the Aylmer dump on October 15. A Franklin's Gull was seen at Shirleys Bay on September 30; the same day five Arctic Terns were also found there, only the second fall record. A very late Black Tern was observed at Deschênes on September 27, and another at Britannia on September 30. The unusually large number of four Screech Owls (possibly a family group) were heard at the Nepean dump on September 29. A very late Common Nighthawk was seen on October 2 at Remic Rapids.

A minor invasion of Boreal Chickadees occurred during October. At the same time a large number of Black-capped Chickadees were observed moving through the area. Thrushes also moved through in large numbers but peaked earlier, in mid-September. Bohemian Waxwings appeared early this fall, three at Britannia Pier on October 2 and another three in Britannia Woods on October 16.

If there was one highlight of the fall, it was a Prothonotary Warbler in Manotick on Mrs. LeGeyt's property. It stayed around for four days (October 19-23) and was observed and photographed by many people. It is only the third record for Ottawa, the other two records also being fall birds. The first fall record for Yellow-breasted Chat was also established this year when one was banded and photographed near the airport on September 29. A very late Cape May Warbler was found at Appleton on October 30.

For the third year in a row, Sharp-tailed Sparrows appeared; this time two on Haycock Island from October 1 to 5. These sparrows may be a more regular species than previously thought. Snow Buntings arrived a little earlier than usual with one observed on October 16. Their numbers grew quickly to 260 by October 29. Early November sightings of Common Redpolls and Pine Grosbeaks may indicate a good year for winter finches.

This report could cover only the highlights of the fall. Those readers who want a more complete summary of sightings are referred to *The Shrike*.

Trail & Landscape Deadlines for 1984

Date of Issue	Deadline
March-April	December 29
May-August	March 3
September-October	June 30
November-December	September 1
January-February, 1985	October 27

Material intended for these issues must be in the Editor's hands before the deadlines for consideration.

Escaping Caterpillars

Jack Holliday

Caterpillars are accomplished escape artists, and determined, anthropomorphically speaking. My first observation was of six Tomato Horn Worm larvae imprisoned in a large cardboard box. I had discovered them on a neighbour's tomato plant, of which they had devoured every leaf, leaving only a few rough stalks and some small green tomatoes. In their hunger, they had eaten into most of the tomatoes.

I had never encountered this particular larva before, so I gathered them together, brought them home, and put them into a cardboard box with a generous supply of tomato leaves. They seemed content for several days and set about eating the daily supply of leaves. They were quite large when I found them, 8 cm in length, so I knew it would not be long before they went into their pupal stage. One day when I opened the box, I discovered one of the larvae seemingly eating the bottom of the box.

I was perplexed since there was a generous supply of leaves available and wondered if that particular larva was missing something in its diet. The next day all of them were slowly and methodically chewing holes in the bottom of the box. This was an unexpected and strange behaviour which required some thought. A careful examination revealed that although they were eating some of the box, they seemed also to be fraying the cardboard in some manner, either with their mouth parts or their legs.

Aha! Of course! They were trying to dig down into soil to pupate. Quickly removing the larvae, I put a 10 cm layer of soil into the box, then returned the larvae to the box. After a few moments each started to dig with its legs and mouth parts, and within minutes disappeared slowly into the soil. Thirty days later, I dug into the soil and found the pupae, each in a cavity seemingly of compacted earth, or of earth somehow stabilized so that it did not collapse in on the pupae.

For the last several years I have raised Cecropia larvae from the egg stage to the cocoon. Given half a chance, the larvae will escape the container. A glass jar with a metal lid will contain them safely, but I found that the eggs were attacked by fungi in a closed container. I tried a small box with a wire screen. That worked well up to the time the eggs hatched, but then the tiny caterpillars soon found folds in the screen and escaped. Did you ever attempt to find and retrieve fifty, 3 mm long, black caterpillars loose in a room? Oh boy! Luckily my long-suffering wife is not *too* squeamish about caterpillars galloping around the house.

When the larvae become larger, they graduate to a sturdy wooden box with a wood-framed, screen lid which fits snugly. Safe, one would think. But a full-grown larva can put his back against the lid and slowly lift it up to provide an escape route. Somehow the other larvae learn of the "prison-break" and follow out of the box. Large larvae are easier to see but quicker to disperse!

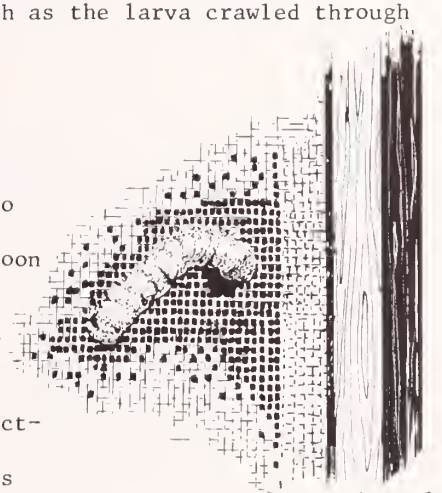
Last year and again this summer, I have reared Luna larvae. One of the problems of raising caterpillars is feeding them fresh leaves twice a day. If one goes to the cottage for a weekend, then the boxes of larvae must be carried along. Once there, a suitable supply of leaves must be available. (Lunas prefer Walnut or Butternut and will also eat White Birch leaves.)

In July I was out of the city for five days. Not comfortably able to carry the box of larvae with me, I left them in the care of my wife and son with some trepidation. I left a generous supply of Walnut leaves and instructions on the feeding and where to find more leaves. When I returned, I found evidence of some neglect on the part of the "keepers". The leaves in the box were dry and brown. Quickly, I supplied a fresh handful of damp leaves for the famished and probably dehydrated caterpillars.

Two days later I was amazed to find one of the larvae chewing at the screen of the lid. Now, that lid has a fibre-glass screen - fairly tough material. The jaws of the larva cut methodically through it with ease. Seemingly the caterpillar ate the fibre-glass, as there was no evidence of pieces discarded. Apparently it had "decided" to escape, regardless of the cost, and the only method available was to eat its way out. When I discovered the attempted "jail break", the hole was just about large enough, and shortly after, I took a photograph as the larva crawled through the hole.

Subsequently, I returned the larva to the box and plugged the hole, and there were no other attempts to chew holes (to my knowledge). The larva did not seem to be affected by its consumption of glass and eventually made its cocoon among the leaves.

Unfortunately, I do not know which of the 21 cocoons has the "escape artist" inside, so I will not know if the moth will be affected by the intake of glass fibres. If I discover one with glass wings or a set of goggles, I'll let you know.



Luna larva escaping through hole it had chewed in fibre-glass screen.

Education and Publicity Committee

Kenneth W. Taylor

The Education and Publicity Committee is, in many ways, the official propaganda wing of The Ottawa Field-Naturalists' Club. The committee's main function is to keep the general public aware of the Club and its various activities, and to inform the public about issues which are of concern to the Club.

One of the ways we accomplish these goals is by setting up Club exhibits at various local and regional events dealing with nature or conservation. In the past year, for example, we have mounted displays at the Federation of Ontario Naturalists Annual Meeting, the Canadian Nature Federation Feed Our Feathered Friends Festival, and the Ottawa Duck Club Wildlife Art Show. These exhibits include, typically, examples of the Club's publications, descriptions of its activities, and a selection of the Club's sales articles. The Education and Publicity Committee is also responsible for the sale of these items at OFNC monthly meetings and at the annual Soirée.

The committee carries out its education functions, in part, by providing trip leaders and speakers for other groups in the community. Over the years everyone from six-year-old Beaver Scouts to senior citizens has benefitted from this service. Each year since 1973 the Club has supported the scientific endeavours at the Ottawa Regional Science Fair. These awards consist of a cash prize and a free one-year membership in The Ottawa Field-Naturalists' Club. The Education and Publicity Committee is responsible for lining up judges and for presenting the awards to the winners.

On the publicity side, the committee, at the request of the Education and Lectures Committee, spreads the word about certain Club meetings and outings through news releases to local newspapers, and radio and television stations. Special events such as the Club Centennial celebrations of 1979, the Ontario Wetlands Policy Workshop of January 1982, and the Federation of Ontario Naturalists Annual Meeting, which the Club hosted this past June, are the subjects of intensive media "blitzes".

In 1978 the Club telephone was installed. The telephone made the Club and details of its activities much more accessible to members and to the general public. This accessibility was enhanced by the fact that the Club telephone number had belonged previously to a service called "Dial-a-Drink"!

In recent years some of the Education and Publicity Committee undertakings have had disappointing results. In 1979,

letters were sent to local schools, advising them of the availability of *Trail & Landscape* as a natural science teaching aid. There was very little response. In 1983, *Trail & Landscape* was offered free to selected local politicians to keep them informed about regional conservation issues. There was almost no response there either.

The Education and Publicity Committee can always use volunteers to lead nature walks, give talks, and to man the Club exhibit at various local events. In the near future, the committee will begin putting together educational packages dealing with various science subjects.

If you are interested in getting involved in any of these activities, or if you would like to serve on the Education and Publicity Committee, just call the Club number (722-3050) after 10 a.m.

Some Milestones in the Evolution of
the Education and Publicity Committee

1961	Public Relations Committee formed
1969	Education Committee formed
1972	Public Relations Committee renamed Publicity Committee
1975	Education Committee and Publicity Committee amalgamated to form Education and Publicity Committee.

Ken Taylor is Chairman of the Education and Publicity Committee.

Winter Wildflowers in Ottawa: Collectors' Items from Clyde Woods

Ross Anderson

Wildflowers of the winter season, for anyone who cares to look, are full of mystery and delight and a special sort of beauty. The characteristics of the flower and its supporting structure remain discernable when the colour and appearance we enjoyed in summer have changed entirely.

We collect bouquets of wildflowers from the fields around Clyde Woods in every season of the year. There is almost no flower that does not find its place sooner or later. Goldenrod, loosestrife, bulrush, aster, thistle, grass and milkweed all are there. In autumn the colours abound in amethyst, purple, gold and green. Now, in early winter, with the first snows decorating the fields and with ice on the ponds, the same wildflowers are decked out in tones of russet, ochre and silver gray.

Useful References

Weeds of Canada by Clarence Frankton and Gerald A. Mulligan with illustrations by W.H. Wright and Ilgvors Steins. Publication 948, revised 1970, Canada Department of Agriculture. This little book is an indispensable reference with clear drawings and explicit text which aid in identification winter or summer.

Weeds in Winter written and illustrated by Lauren Brown, Houghton Mifflen, Boston, 1979, is a delightful, soft-covered, pocket book with an excellent key. It is easy to read and a pleasure to own.

The Audubon Society Field Guide to North American Wildflowers by William A. Niering and Nancy C. Olmstead, Alfred A. Knopf, New York, 1979. In addition to splendid colour and lucid presentation, this field guide contains most interesting comments on 658 major species of wildflowers in eastern North America.

Common St. Johnswort Hypericum perforatum

This golden-yellow wildflower is said to bloom on St. John's Eve, June 24. Be that as it may, St. Johnswort was in full regalia on June 13, 1983 around Clyde Wood. In November its flowers have turned a deep tobacco brown.

Common Evening Primrose Oenethera biennis

The primrose in winter has a stiff, unbending stalk, a little like mullein but more individual and open. According to the Audubon Guide the roots of the primrose are edible and the seeds are important as bird feed

Goldenrod — Solidago spp.

Almost common winter wildflower, and one of the last to retain its golden colour in the fall the goldenrod is all bronze and silver in winter As a sidelight, Dahlias, sunflowers, and lettuce are among cultivated plants related to goldenrod.

Federation of Ontario Naturalists Report

Dan Brunton

There is life after the FON Conference! The Club was so involved in hosting the Conference this year and, later, tidying up the administrative requirements of this extremely successful event, that we really haven't paid a lot of attention to other FON efforts recently. Before I do so, one final comment on the Conference is in order: a profit of about $6,000 was realized, half of which goes to the host Club. The Ottawa Field-Naturalists' Club had already decided to donate the Club share of any profits to the Alfred Bog Trust Fund, and this has been done. The benefits of the Ottawa conference, therefore, will be demonstrated in physical achievements as well.

The Federation's membership has shown a significant increase so far this year - a real plus - and the membership was generous in response to a request for donations to the Acid Rain Coalition. They contributed about $20,000, the same amount that donations to the Federation have declined, thus increasing the projected deficit to about $38,000! This deficit was anticipated, however, and may well be reduced before year's end.

About 55 OFNC members joined the Federation as a result of the mailing that the Council authorized some time ago; that's encouraging but still leaves about 600 members who chose not to be FON members as well. The Federation may be developing a system of financial incentives to encourage Federated Clubs like ours to encourage members to join the FON also. More on that at a later date.

The FON has agreed to underwrite any possible short-fall (as much as $4,000) with the Ontario Breeding Bird Atlas Project. A submission to the FON Board by the OBBA pointed out that over 90% of study squares south of the Canadian Shield had been adequately covered in this extremely popular venture. There are over 1400 people involved in the Atlas now!

The Federation is continuing to press the Ontario government to move more quickly towards the establishment of the most important of the candidate provincial parks announced this spring. We are also seriously questioning the altered regulations that will allow mineral exploration in 80% of the area of these candidates and will also permit hunting and trapping in all new nature reserves! Arlin Hackman has coordinated efforts on this project and has also urged individuals and groups to contact their elected representatives concerning the coming cabinet decision on the fate of the Niagara Escarpment Plan. In this regard, I talked with Mr. Norm Sterling, Provincial

Secretary for Resource Development and the official responsible for bringing the Niagara Escarpment recommendations to the Cabinet, expressing The Ottawa Field-Naturalists' Club's commitment to conservation of natural lands along the escarpment.

Federated Clubs were also told of the important new Canadian Wildlife Service report that, for the first time ever, provides a realistic assessment of the economic value of wildlife to Canada. The study concluded that wildlife utilization in 1981 contributed $4.2 billion to the Canadian economy, $3 billion of which was NON-consumptive use, as opposed to consumptive (hunting and trapping, etc.), which contributed less than *half* that much ($1.2 billion). Imagine if we added the values of botanical appreciation and landscape aesthetics! The report is entitled *The Importance of Wildlife to Canadians* (Catalogue Number CW66-62/1983E), and is available from the Department of Supply and Services Canada or the Canadian Wildlife Service. I recommend it highly.

The FON and You

The Federation of Ontario Naturalists was founded just over fifty years ago for three basic purposes:

1. To foster understanding and interest in natural history;
2. To promote conservation of wildlife and wild places;
3. To serve naturalists in Ontario.

Today the FON is a federation of some 45 federated and affiliated nature clubs across the province, in addition to its own nine thousand direct members. Together they form a strong family, each contributing to the whole.

As a member of the FON, you benefit from the trip program, the bookshop, and the magazine, *Seasons*. But most important, you support the FON conservation program so that we can work actively to protect the wildlife and wild places in Ontario.

As a member of The OFNC, you benefit from local field trips, regular informative meetings, the publications, and the company of other nature lovers. And you become involved in the issues of importance to Club members, especially in Eastern Ontario.

The FON and the federated nature clubs enjoy a symbiotic relationship, each helping the other. If you are part of one, you should also be part of the other. You can join the FON by sending $21. to the Federation of Ontario Naturalists, 355 Lesmill Road, Don Mills, Ontario M3B 2W8.

Peregrine Falcons Nest in Arnprior

Eric Ridgen and Heather Lang-Runtz

Arnprior, a small town of 6,000 people located 60 km west of Ottawa where the Madawaska River flows into the Ottawa, is making ornithological history.

Since the community first realized that a pair of Peregrine Falcons had chosen to nest on the spire of St. John Chrysostom Roman Catholic Church, the church grounds have been crawling with birders, curious onlookers, and personnel from both the Canadian Wildlife Service (CWS) and the Ontario Ministry of Natural Resources (MNR). The adult pair, both sporting CWS bands, were seen together in early August, several days before the townspeople became aware that they had a family of four in their midst.

The successful nesting in Arnprior represents Ontario's first breeding of this endangered species in 20 years. The last confirmed nesting occurred in Algonquin Park in 1963. Equally as significant, the Arnprior nesting represents the first known nesting in eastern Canada by two CWS-released falcons*.

The adult female, bearing a band marked AP5, was released from Hull, Quebec, by the CWS on July 26, 1980. The adult male, known as 4P1, was released from the same site the following year. Both had been born in the CWS Wainwright, Alberta, rearing facility and, at four weeks old, had been transferred along with other young falcons to their Hull site. Here, they were kept in a rooftop shelter for three weeks and were fed through a stovepipe. They were released on the above-mentioned dates to hunt on their own.

Once found throughout most of the civilized world, the Peregrine Falcon has been fighting for survival during the last 35 years. The use of DDT almost wiped out the bird: falcons ingest the pesticide through their victims, and, in turn, the pesticide weakens the egg shells.

Wildlife officials in both Canada and the United States have been attempting, as part of a massive reintroduction program, various means of raising the young and introducing them back into the wild. But, although the use of DDT has been greatly restricted in the two countries, a major stumbling block still stands in the way. The pesticide is still commonly used in Central and South America, where the peregrines live for almost half the year. CWS officials, including Iola Price, coordinator of the Latin

* *See Iola Price's article*, Peregrine Falcon Release Program, *in Trail & Landscape 14(3): 90-98. JMR*

American program in Hull, are now working with wildlife agencies in Mexico, Central America and South America to try to convince the governments there of the necessity for the elimination of DDT.

To make matters even worse, the female falcon nesting in Arnprior was the victim of another opponent - man. She was discovered shot to death on or about August 20. And the two young have been missing since.

The Federation of Ontario Naturalists (FON) is offering a $1,000 reward for information leading to the conviction of the person or persons responsible for the shooting. If the missing young are in captivity, the reward will be paid alternatively for information leading to their live recovery. The MNR supports the reward, and the investigation team consisting of RCMP, MNR and CWS officials is being headed by Allan Armstrong, an MNR staff member working out of the Pembroke office.

Doug Roseborough, MNR's Director of Wildlife Branch for the province, is shocked by the shooting. In a press release issued by his office at the end of August, Roseborough wrote: "I'm especially appalled that the bird was killed just as we were beginning to discover just how successful our program was". Officials from the CWS, MNR and FON view the killing as a malicious act which threatens the possibility of re-establishment of the Peregrine Falcon. But they are still hopeful that the male will bring a new mate to the nesting site in 1984.

The adult female was first spotted on the church tower by local birder, Michael Runtz, on April 30. A light rain was falling, and the bird was feeding on a starling. Throughout the months of May and June, Eric Ridgen checked the tower several evenings every week, but there was no sign of the female until the evening of July 4. She was seen on another coronet on the west side of the tower. The next sighting occurred at 8 p.m. on July 7.

On July 17, again at about 8 p.m., a falcon was seen flying toward the Ottawa River about a block west of the tower. The bird was carrying a large prey. There was no suspicion at this time that the falcon could have been a different bird; since the sex of the bird could not be distinguished at that height, it was assumed that the bird was the same female.

On August 3 at 7:45 p.m., a pair of falcons were seen on the tower, the same female and a smaller version with a very yellow cere and thin, dark brown bars running in rows down each side of the breast. The centre of the breast was creamy white with very few bars. Leg bands on the latter could not be seen as the bird kept flying from the tower. An attempt at copulation with the female was witnessed, so it was assumed that the pair had only recently met.

It was then that the CWS staff in Hull was told of the sightings. On August 4 at 8 p.m. the male bird seen for the first time on the previous day was again sighted. This time the leg bands were clearly distinguishable: the bird wore a silver band with a locking ridge on its left leg and a dark-coloured band with whitish markings on its right. At one point during the evening, the male flew south from the tower up the Madawaska River, followed immediately by the female. She returned in two minutes carrying a large bird about the size of a pigeon. She landed on the tower and began to defeather and eat the bird. Other than a great deal of calling, wailing and cacking, there was still no visible evidence of young in the area.

The next day at about the same time, CWS officials Iola Price and Tony Keith arrived on the scene. They spotted two juveniles on the tower. The young falcons were of equal size and colouration: browner than the adults and with large, dark brown, blotchy bars running in vertical rows on the breast. A thin white bar was visible on the tip of the tail.

Initially, the adults were not at the tower; however, excitement mounted when the observers, including Eric Ridgen, realized that a family of peregrines was nesting on the tower. The adults arrived shortly amid much calling back and forth. The juveniles completed short flights around the tower and made sloppy landings. Some attempts were made to land on the almost vertical sides of the top steeple. Although one adult brought a small bird back to the tower, it proceeded to eat it without attempting to feed the young.

During the course of the observations, various attempts were made to determine the exact location of the nesting site, but to no avail. In the days following, several local birders checked the tower in early morning and throughout the day. Usually the entire family of four left the tower before 6 a.m. and remained away for most of the day. After 6 p.m., a single bird or two would fly back. By 8 p.m. all four were usually on the tower.

One training session was witnessed when an adult flew off high above the tower, followed by a juvenile. The adult made a spectacular dive. Although the young bird attempted an imitation, the landing left a lot be desired: the juvenile slipped and slid off potential perches until it managed to gain a foothold. The fledgling peregrines were seen twice flying around the tower, but no one witnessed any feeding on the wing.

Only the adult male remained at the nesting site after his mate was shot to death, and the two young disappeared mysteriously in August. The male has now migrated south, and the community of Arnprior and the wildlife officials now wait in anticipation of next spring in the hope that another Peregrine Falcon family will take up residence in the church tower.

The End of a Saga? Natural Environment Area Policies in Ottawa-Carleton

Nigel T. Brereton
Planning Department
Regional Municipality of Ottawa-Carleton
222 Queen Street
Ottawa K1P 5Z3

At the end of August 1983 the Ontario Municipal Board gave approval to the Regional Municipality of Ottawa-Carleton's policies towards areas of natural environment in the Region. This was the culmination of a process that started more than a decade previously when the Region was first preparing its official plan. At that time, when information was being gathered, The Ottawa Field-Naturalists' Club submitted the first of what were to be several subsequent briefs on natural areas in the Region (MacKenzie 1970).

The year was 1970, and the first brief was quite a simple affair - a few pages of text and a rough map, but it brought to the planners' attention that there were certain areas in Ottawa-Carleton of ecological importance. Without it, it is questionable whether "conservation and recreation" areas, as they were then called, would have been recognized in the Regional Official Plan adopted in 1974. This Plan identified 24 such areas totalling 42,900 hectares, and while including information from the Ministry of Natural Resources and the conservation authorities, the bulk of the material came from The OFNC.

The Plan was prepared during the early 1970s, when the environmental movement was, perhaps, at its zenith and the planners' recommendations were accepted by Regional Council with little debate. The Plan, however, recognized that there was a need to refine the policies for the conservation and recreation areas, particularly examining them in greater detail so they could be divided into sub-units where different policies would apply depending on the various characteristics (for example, a marsh, a climax forest, a deer yard).

This further study resulted in the publication of the *Conservation Lands* report in 1977, which divided each of the conservation and recreation areas into sub-units and suggested the need to regulate activities such as tree cutting and drainage. Local advisory committees were established to recommend on the public participation program, and on their suggestion all of the affected landowners were circulated a summary of the proposals. The reaction was almost totally negative - fears

about expropriation, devaluation, loss of property rights, public trespass were raised time and time again. So great was the antagonism that what the planners had intended as merely a "fine tuning" of existing policies became a question of whether any of the conservation and recreation areas would remain designated in the Regional Official Plan.

It was during this public participation process that The OFNC submitted their second brief (Dugal *et al.* 1978a,1978b). This brief was much more sophisticated than the 1970 version. It provided plant listings, their relative rarity in Ottawa-Carleton, and identified sub-areas of special significance. It was also a good critique of the *Conservations Lands* report with regard to terminology and boundaries of sub-areas. Unfortunately, despite its far greater scholarship, it had less impact than the 1970 brief. This was because it was almost a lone voice crying in the wilderness against the many voices of opposition. It provided good data for the planners, but the opinion of the planners was now cutting much less ice with the Councillors, and when the revised policies were finally adopted in 1979, the 24 areas had been reduced to 17 and the 42,900 hectares to 31,800 hectares. Although at first glance these differences may not appear very dramatic, what was also important is that in certain locations provision was made for the creation of new residential lots of average 10 hectare size.

These new policies were adopted by Council as an amendment to the Regional Official Plan, but as there were still objections, a hearing of the Ontario Municipal Board was required.

The hearing and decision came in 1982, and the result was that the OMB refused to approve the amendment and sent the planners back to the drawing board. The OMB expressed concerns about the lack of clarity of the policies, the fact that the acquisition and management policies were separate from the official plan, and that if persons are denied "reasonable beneficial use" of their property, the municipality should be prepared to acquire it. This decision meant that the question of designating an area as "natural environment" was linked to an acquisition policy, whereas previously, although land purchase was proceeding - chiefly in the Marlborough Forest - Council had not been under any obligation to buy. The OMB decision meant, naturally, that under any new policies the "dollars and cents" aspect would loom large.

The revised policies which the planners drafted in early 1983 provided a further opportunity for public reaction, and, as previously, the voices of those in support were lost against those in opposition. What was finally adopted by Council in May 1983 and subsequently approved by the OMB is a drastic reduction from earlier positions - eight areas remain designated "natural environment", and of these, four are in the Greenbelt. The total is 18,000 hectares. In the four areas outside the

Greenbelt, Council will be advertising its interest in acquisition but will not force expropriation. Land can remain in private ownership, and houses can be built where lots already exist.

A new category of designation was created for five other areas - Marginal Resource (Restricted). This designation provides the landowner with the opportunity to submit an environmental impact study as part of a subdivision plan, and, based on the study, Council will decide whether or not the development should proceed. However, if Council wishes to forestall the development, it will have to be prepared to buy the property. A situation where Council has to decide whether to buy has not yet arisen. As each subdivision will be reviewed individually, it is not possible to know in advance how a piece of land will fare and whether Council will adopt a consistent or selective approach to acquisition. This means that the longer term outcome for such areas as the Carp Hills is unknown.

Are there any lessons for the planner and for the naturalist to learn from the above events?

For the planners, it is probably one of caution in tampering with what may be less than perfect policies lest in the process they lose more than they gain.

For the naturalists who have been involved in the process, the lessons are probably already known:

- don't assume that protecting natural areas is a motherhood issue, particularly in hard economic times when protection may mean acquisition;

- don't assume that a well-researched "scientific" brief will carry the day on matters that touch very basic emotional questions;

- don't rely on planners to be able to carry the ball for you - direct contact with elected representatives is essential;

- ten people speaking as individuals are probably more effective than one brief presented on behalf of one thousand.

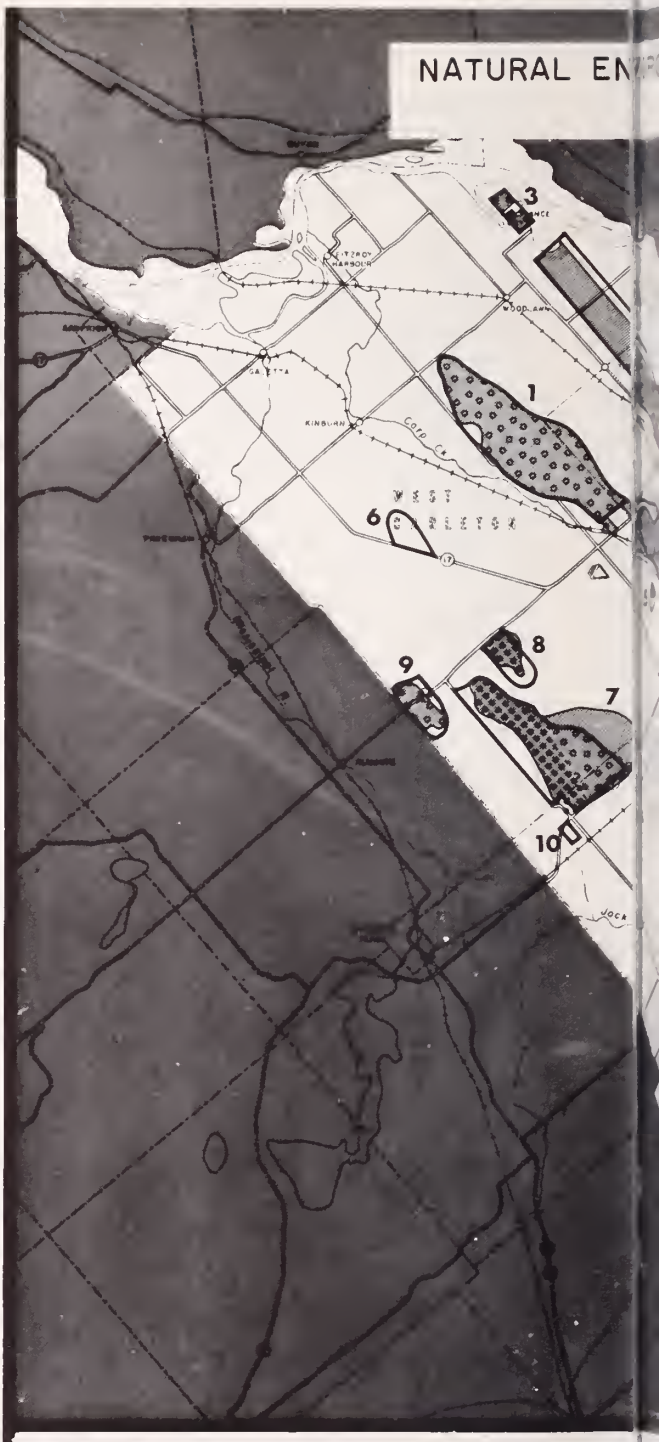
The extent to which opportunities will arise in Ottawa-Carleton to put these lessons to work is, of course, problematic, but if none do, it probably is a good sign for what remains of a much more amibitous planning policy.

Overleaf: Natural Environment Areas in the Regional Plan, 1983, compared with the areas proposed in 1974 and 1979.

1 CARP HILLS - SOUTH MARCH HIGHLANDS
2 CONSTANCE CREEK - SHIRLEY'S BAY
3 WEST CARLETON FOREST
4 CRANBERRY MARSH
5 BRADLEY'S FALLS
6 HWY. 17 DEER WINTERING YARD
7 PINERY - LONG SWAMP
8 CORKERY WOODLANDS
9 THE BURNT LANDS
10 HWY.7 WATERFOWL AREA
11 MER BLEUE
12 OSGOODE WOODLANDS
13 MARLBOROUGH FOREST
14 TIP OF WINCHESTER DEER WINTERING YARD
15 CUMBERLAND FOREST
16 BILBERRY CREEK
17 NEPEAN WOODLOT
18 SOUTH GLOUCESTER
19 STONY SWAMP
20 PINHEY FOREST
21 PINE GROVE
22 GREEN CREEK
23 ABANDONED NEW YORK RAILROAD LINE

NOTE : EXCLUDES AREAS WHICH WILL BE DEALT WITH AS PART OF THE RIVER CORRIDOR STUDY.

R.M.O.C. PLANNING DEPARTMENT, OCT., 1983




RONMENT AREAS IN THE REGIONAL PLAN
Ottawa River
Rideau R.
Brook
Castor
NATURAL ENVIRONMENT AREA, 1983
MARGINAL RESOURCE AREA
RESTRICTED, 1983
scale 1 : 400,000 échelle
4 0 4 8
miles milles

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Nigel Brereton is the Manager, Rural Policy, in the Planning Department of the Regional Municipality of Ottawa-Carleton.

See Audubon's *Birds of America*

Eastern Ontario birders can look at a copy of Audubon's *Birds of America* simply by visiting the Parliament Buildings any day of the week. Two volumes of Canada's four-volume set of the double elephant folio edition are on display at the entrance to the Parliamentary Library. The pages are turned once a week.

The double elephant folio edition of Audubon's *Birds of America* was produced in London between 1827 and 1838. Parliament's copy belonged to the Audubon family and was assembled from loose pages; some of the pages contain pencilled annotations by Audubon and members of his family. It was purchased in 1857 for $1,100., replacing two earlier copies which were destroyed by fire in Montreal in 1842.

Centennial Roundup

Diana R. Laubitz

In 1979 The Ottawa Field-Naturalists' Club celebrated its one hundredth birthday. The many centennial events of that year did not just happen, but were the result of careful planning over the preceding five years. The great success of the celebrations is a tribute to the many Club members who helped with the planning and with the work required to convert the plans to reality.

The Centennial Steering Committee has carried through its mandate to a final report, which was submitted to the Council a year ago. In this article, Diana summarizes its main points. JMR

The Centennial Steering Committee presented its final report to the Council in the fall of 1982, culminating efforts initiated by Hue MacKenzie in 1974.

The Committee was established officially early in 1976 under the chairmanship of Hue MacKenzie, with a mandate to carry out planning and coordination, to recommend to the Council the financing and resources needed to accomplish projects, and to propose suitable publicity for the 1979 date. Some of the most successful projects were carried out relatively quickly, whereas others required all the time available. Only two of the approved projects were not completed in the time period, one because leaders identified the need for more field data, and the other for lack of a leader.

The experience of the Steering Committee enabled some strong recommendations to be made to the Council, for clarification of relationships between the Council and special planning committees (and the Club's committees), for the requirement of formal records of meetings and decisions, and for better control of projects set up by such committees. These recommendations were made in the formal report to the Council, along with a review of the planning and organization of Centennial activities and a short history of each project.

The table on the following pages lists all 34 projects put before the Steering Committee and the Council, and shows how they fared.

SUMMARY OF CENTENNIAL PROJECTS

Short Title	*Council Decision*	*Responsibility*	*Notes*
Buy land	Not supported		
Logo pin	Approved	Trudy Bedford	Pins ready in May, 1979.
Banquet*	Approved	Excursions & Lectures Committee	Held May 19, 1979.
Exhibition*	Approved	Donna Naughton, David Gray	Opened May 20, 1979, by Earl Godfrey.
Postage stamps	Approved	Chuck Gruchy	Against Post Office policy.
Centennial volume of *The Canadian Field-Naturalist***	Approved	Publications Committee	No project leader could be found.
Print Mrs. White's paintings	Approved in part		Selection was displayed at exhibition.
Reprint John Fletcher's inaugural address	Not supported		Extracts were quoted in *Trail & Landscape*.
Macoun autobiography, second edition	Approved	Sally Gray	Made available December, 1979.
Natural history picture book	Not supported		
Flora and fauna of Parliament Hill	Not supported		
Club history	Approved	Publications Committee	Articles in *Trail & Landscape* and *The Canadian Field-Naturalist*.
Who's who of The OFNC	Not supported		
Reprint *Flora Ottawaensis*	Not supported		
Reprint Club publications	Not supported		
Cumulative index of early Club journals	Approved	Jack Gillett	Announced in *The Canadian Field-Naturalist* 94(4).
Orchids in the Ottawa District	Approved	Allan Reddoch, Joyce Reddoch	Not yet completed.
Conference*	Approved	Gilles Patenaude, Valerie Hume	Seminars held May 19, 1979; published in *The Canadian Field-Naturalist* 95(1).

Revise boundaries of the Ottawa District	Not supported		
Picnic	Approved	Excursions & Lectures Committee	Held September 16, 1979.
Trail & Landscape centennial issues**	Approved	Joyce Reddoch	Many special articles in 1978 and 1979.
Photo competition	Not supported		
Bird-finding booklet	Approved		Combined with Natural History Guide.
Art competition	Not supported		
Natural History Guide - Ottawa Area	Approved	Conservation Committee	Long-term project - underway.
Excursions, lectures*	Approved	Excursions & Lectures Committee	Centennial Weekend, May 18-21, 1979.
Trail with natural history guides	Approved	Macoun Field Club	Opened September 23, 1979; guide being considered.
Birds in Ottawa, 1979	Approved		No leader was found, but the information was collected.
Tree planting project	Approved		Ontario Ministry not in favour - dropped.
Stereo record	Approved	Monty Brigham	Made available in May, 1979.
New Birder's Checklist	Approved	Bruce Barrett	Made available in May, 1979.
Nature calendar	Approved	Marc Forget	Made available in November, 1978.
Hasti-Notes	Approved	Ellaine Dickson	Made available in January, 1979.
Birthday Party	Approved	Excursions & Lectures Committee	Council project, held on March 19, 1979.

* *These projects became part of the Centennial Weekend, May 18-21, 1979, co-ordinated by Roger Taylor.*

** *Messages were published from outgoing and incoming presidents (Roger Foxall,* The Canadian Field-Naturalist *93(1), and Roger Taylor,* Trail & Landscape *13(2)).*

Letter: on Bird Name Changes

Richard Blacquiere and Bruce Di Labio hit the nail on the head when they said that the latest AOU-imposed changes to bird names are controversial. In fact, I would go as far to say that the ceaseless revisions by this body pass from absurdity to absurdity, taxing the patience and credulity of even the most dedicated birdwatcher. Instead of simplifying nomenclature, AOU has *multiplied* the number of names in common use (slate-coloured junco, northern junco, dark-eyed junco ...) and cast a pall over a great many colourful vernacular names (Baltimore oriole, myrtle warbler ...). The result is a confused public, unaided by a host of bird guides and books that are outdated almost as soon as they are published.

And the AOU's zeal, as Messrs. Di Labio and Blacquiere point out, shows no sign of abating. With the latest round of changes (whistling swan to tundra swan, gallinule to moorhen ...) AOU confirms the precedence of European over North American names. The Europeans must indeed be smiling. One can now easily conceive of the day when our august North American ornithological body might decide to rename *all* North American "blackbirds" and "sparrows". After all, these appellations truly belong by historic and etymological right to European sparrows and the European blackbird, birds not closely related to their North American namesakes. Indeed our birders oft-repeated line that "those European sparrows are *really* weaver finches" is nothing less than a nice piece of cultural larceny. The birds the Anglo Saxons called "spearwa" enjoy clear title to their name.

There is only one sensible way to end the perennial foolishness. Ornithologists, serious naturalists and listers should leave the non-specialist public with the well-established, colourful, idiosyncratic system of vernacular names it cherishes. The specialists themselves should bite the bullet (as field botanists have sensibly done) and learn scientific binomial nomenclature. That is the very system after all that was designed to accommodate all the tinkering AOU and the listers could ever wish!

Let me see ... that was 10 *Cyanocitta cristata* and two *Spizella arborea* at my feeder this morning. That's not so hard, is it?

(signed) Arnet Sheppard

The Water-milfoils *(Myriophyllum)* of the Ottawa District and Ottawa River, Canada

Susan G. Aiken
Biosystematics Research Institute, Agriculture Canada
Ottawa, Ontario K1A 0C6

The recent *Trail & Landscape* article on *The Pondweeds (*Potamogeton*) of the Ottawa-Hull Region, Canada* (Dobson and Catling 1983) has inspired me to draw attention to the second largest genus of submersed aquatic plants in the region. Although there are many fewer *Myriophyllum* species, their identification is often a challenge. The extent of the problem first became apparent to me while I was surveying aquatic plants in lakes of Gatineau Park, Quebec (Aiken and Gillett 1974).

Early in June, 1971, a group of researchers from the Biology Department of the University of Ottawa, under contract to the National Capital Commission, began preliminary investigations at Lac Philippe. At that time a few unfamiliar water-milfoil plants were discovered at the boat docking area. They were less than a half metre long, pinkish, with exact whorls of feather-like leaves in fours. There were two other species of water-milfoil in the area, and an initial thought was that these two species may have hybridized, producing offspring that were showing hybrid vigor. At that time, Jack Gillett had just published a paper on a polyploid series in *Trifolium* (clovers) (Gillett 1969), and we were further encouraged to think along the lines of a possible polyploid series when we found the recorded chromosome numbers for three species of water-milfoil known around Ottawa (*M. alterniflorum* $2n = 14$, *M. verticillatum* $2n = 28$, and *M. exalbescens* $2n = 42$). The unknown water-milfoil was left in position and allowed to flower; specimens were collected, but it would not key out convincingly in any North American floras.

Leaving the few plants of the unknown water-milfoil in the lake was a major mistake. By September, 1971, it was well established in the boat docking area. By 1974 it was continuous from the boat docking area to Parent Beach and so thick between the beach and the island in the lake that frogs could rest on the mats formed by the floating interlocking branches. It grew in water less than a half metre deep, flourished in water 1-4 m deep, but also invaded water 5 m or more deep, a habitat not used by many native species. The extent of the weed bed and the interlocking branches was sufficient to reduce wave action in the lake, creating a habitat for mosquitos to breed in that had not previ-

Figure 1. Myriophyllum spicatum. *Photograph of the first herbarium record known of a collection from Ontario. Note the branching just below the inflorescences. This specimen is stored at the Department of Agriculture Herbarium, Ottawa.*

ously existed. Most other species already present in the area had been displaced.

By 1974, I had done sufficient reading about water-milfoils in North America to realize that the unknown plant was probably Eurasian Water-milfoil (*Myriophyllum spicatum* L.), a plant initially introduced into North America in the Chesapeake Bay of Washington, D.C. In the 1960s, this species was a major pest in that area and was studied extensively (Anderson *et al.* 1965, Davis *et al.* 1973, Elser 1969). The story goes that about 1954 a motel owner along the Tennessee River Valley saw this attractive plant on a visit to Washington and deliberately transplanted it in the river in front of his motel to attract fish. Apparently he sold the motel within two years and moved to Florida beyond the easy legal reach of the Tennessee Valley Authority. The Authority found itself dealing with a weed that at its peak was spreading through the waterway at the rate of 15 km per year. The "invasion" was controlled in 1967-68 by helicopters dumping 2,4-D pellets into the dense weed beds. The claim was made that the herbicide could be delivered at the rate of half a ton (American) every two minutes by working from a barge on the river. Researchers in Tennessee took trips to Europe and about ten years to determine what the weed was.

One of the researchers, Leon Bates of the Tennessee Valley Authority, was most helpful in supplying both the weed from the valley and plants collected in Europe and kept growing in Tennessee for me to study. Thus it was that a sample of the Lac Phillippe plant came to grow beside plants from Europe, the Tennessee Valley, Wisconsin, and the Okanagan Valley of British Columbia (where it first appeared in 1971), under uniform conditions in a greenhouse pool in Minnesota. All the plants collected in North America grew to look identical.

In August, 1976, a conference held in Peterborough, Ontario, brought together people from across Canada, particularly from British Columbia, Ontario and Quebec, with people who had worked with Eurasian Water-milfoil in the United States. After talks and field work examining the major problem that had developed around Peterborough, in the Kawartha Lakes, it was agreed that Eurasian Water-milfoil was in Canada and established as possibly the major aquatic weed at the time.

The earliest collection known for the plant in Canada was made in Rondeau Provincial Park in September, 1961, but entered the University of Toronto Herbarium as *M. exalbescens* Fern. and passed apparently unnoticed for many years (Fig. 1). The reason that Eurasian Water-milfoil was so difficult to identify initially is that on traditional keying characters it is very like the North American native plant, *M. exalbescens*. In fact, that species was called *M. spicatum* until 1919 when Fernald separated it as a distinct species, a taxonomic judgment that has been much debated (Patten 1954, Love 1961 and Sculthorpe 1967). It has recently

been established that *M. exalbescens* occurs in Europe and has been recognized in the Swedish flora as *M. spicatum* var. *squamosum* Laestad. (Aiken and McNeill 1980).

Although *M. exalbescens* and *M. spicatum* are closely related, they have very different growth strategies, and an awareness of these differences greatly helps in their identification (Aiken *et al.* 1979). It also helps to explain why Eurasian Water-milfoil was able to invade North American waters and dominate successfully the native habitats. In the fall, *M. exalbescens*, like *M. farwellii* and *M. verticillatum*, moves food reserves *upwards* to apical and lateral overwintering buds known as turions (Fig. 2). In *M. farwellii* and *M. verticillatum* these buds have an abscission layer at the base and are released from the parent plant late in the fall. They function as overwintering vegetative propagules and may be seen floating around shortly after ice has left the lake. *Myriophyllum exalbescens* produces a very distinctive turion with short, thick, dark green leaves. The turions of this species do not have an abscission layer at the base, but remain attached to the parent plant as it dies back slowly under the ice during the winter (Aiken and Walz 1979). By contrast, *M. spicatum* in the fall moves food reserves *downward* from the upper parts of the plant for storage in the root crowns, and the tops die back. This is similar to perennial herbaceous terrestrial plants. Titus (1977) did extensive analyses on the food reserves in the root crowns of *M. spicatum* and was persuaded to use the same analyses

Figure 2. Turions, overwintering buds, of three species of watermilfoils: 1. Myriophyllum exalbescens, *2.* M. farwellii, *and 3.* M. verticillatum.

on turions of *M. exalbescens*. Initial work suggested that the average root crown of *M. spicatum* had about ten times the food reserves that are present in a turion of *M. exalbescens*.

Not only does a root crown have more food reserves, but it also breaks dormancy much earlier than the turions of *M. exalbescens*. In Tennessee, *M. spicatum* has been observed to begin growing under the ice in January. In Wisconsin and Southern Ontario, it begins growth in late March and, in water one metre deep, has branches at the surface shortly after ice out in late April or early May. This is the time when turions are beginning to break dormancy along with the overwintering structures of other North American native plant species. In the past, when turions elongated, they grew into clear water and could soon begin photosynthesizing to continue to grow once limited food reserves had been used up. Where Eurasian Water-milfoil became established, it had overshadowed completely the native plants by the time they broke dormancy and greatly reduced the light reaching to the bottom of established weed beds (Dale and Gillespie 1977).

A second, distinctive growth strategy of *M. spicatum* contributes to this overshadowing. Stems of this species usually grow without branching until they are near the water surface where they branch profusely. In a weed bed, the branches tend to interweave, and usually 10-20 cm below the flowering spike, the stem is noticably wider and forms a characteristic curve that appears to assist in holding the flowering spike above the water. By contrast, *M. exalbescens* tends to branch only in the lower third of the plant and has flowering spikes that are borne on stems that are uniformly compact and grow erect through the water below the spike (Fig. 3).

The difference in branching strategy seems to explain why *M. spicatum* forms terrestrial plants readily when it is stranded on damp shores. The stranded stem puts out one or more branches that are compact, erect, 1-5 cm high, with shorter, stiffer leaves and fewer leaf divisions than plants grown in water. This process is reversed rapidly when the stems are resubmersed (Fig. 4). The terrestrial plants have been observed to form areas like lawns along the margins of lakes, especially in the spring and fall when water levels drop and temperatures are less severe on the stranded stems than in July or August. Stems of *M. verticillatum* will do the same thing, but if this phenomenon occurs in *M. exalbescens* it is very rare.

Another character for distinguishing *M. exalbescens* and *M. spicatum* is the shape and colour of the growing tips. This is a good character especially early in the season when

Figure 3. Photograph of the type specimen of Myriophyllum exalbescens *that is stored in the Gray Herbarium, Harvard University. Note that there is no branching of the stem immediately below the inflorescence, although the plant was growing in water less the 25 cm deep.*

Figure 4. Terrestrial plants of Myriophyllum. *The very black, dead-looking stems at the base of the picture were aquatic stems that were stranded on damp mud. They put out side branches and produced short terrestrial plants with much shorter leaves. Later, these plants were completely submersed so that the tops began forming aquatic stems and leaves (the transition occurring between the 3 and 5 cm marks on the scale). Note the first aquatic leaves formed by* M. spicatum *(left) have very few divisions; right,* M. verticillatum.

lake temperatures do not tempt a quick dip to the bottom to look for turion leaves. From May to July, the tips of the growing stems of *M. exalbescens* are very compact, often with a tight, narrow, usually yellowish-green knob. Those of *M. spicatum* are very commonly bright red, and the different lengths of the developing leaves result in a floppy, mop-like appearance of the apex (Fig. 5).

The classic method of distinguishing *M. exalbescens* and *M. spicatum* has been to count leaf division numbers (Fig. 6). All that is certain of this character is that if a leaf has more than 28 divisions, it is from a *M. spicatum* plant (Nichols 1975). Very many adverse environmental factors cause a *M. spicatum* plant to have fewer than 28 divisions (which in classic keys is the *M. exalbescens* characteristic), for example, early spring growth, low nutrients in the environment, water pollution, traces of weed killer in the water, regrowth after mechanical harvesting, and, as illustrated in Figure 4, the aquatic leaves first formed after a terrestrial plant is resubmerged. The floral characters that Fernald (1919) used were photographed (Aiken *et al.* 1979), but in flowers less than 0.5 cm long, subtle differences in the shape of smaller parts are easily overlooked.

I have put so much stress on helping the reader to distinguish these two species because "common things occur commonly", and around Ottawa, if you find a water-milfoil, it is most likely to be Eurasian Water-milfoil, and, if not that, then *M. exalbescens*. The following key is provided for all the water-milfoils known from the Ottawa River and the Ottawa area.

1. Rhizomes present, much branched, thin, whitish or pale brown; leaves scale-like or absent, short, straight stems often appearing as grass-like mats; terminal flowers alternate ..... 1. *M. tenellum*

1. Rhizomes absent, or thick and branching sparsely, brown; leaves pinnately divided, the segments filiform; leaves very visible in dense weed beds; terminal flowers alternate or whorled.

    2. Flowers mostly bisexual in the axils of limp submersed leaves ..... 2. *M. farwellii*

    2. Flowers mostly unisexual on erect spikes above water, in axils of firm, subtending bracts.

Figure 5. Apices of Myriophyllum *species during spring growth; left,* M. exalbescens *with compact, knob-like apices that are usually yellowish-green; at the base of the photograph an elongating turion; right,* M. spicatum *with wider, more mop-like apices that are usually bright red, early in the growing season.*

Figure 6. Leaves of Myriophyllum *species. Left, two summer leaves of* M. exalbescens *with lower leaf divisions almost as long as the midvein of the leaf; next, two turion leaves. Centre, two leaves of* M. spicatum, *the numerous narrow divisions give these leaves a feather-like appearance. Right, two summer leaves and two turion leaves of* M. verticillatum.

3. Uppermost flowers alternate; leaves usually 0.5-1.5 cm long ..... 3. *M. alterniflorum*

3. Uppermost flowers whorled.

    4. Upper bracts entire; lower bracts entire, pectinate or serrate, not more than twice as long as the adjacent carpellate flowers; no perianth in carpellate flowers.

5. Stem much branched at the water surface, thickened 5-20 nodes below the inflorescence to almost double the width of the lower stem, characteristically curved to lie parallel with the water surface; plants never forming turions ..... 4. *M. spicatum*

5. Stem usually unbranched at the water surface, not thickened below the water surface, erect beneath the inflorescence; turions oblanceolate, black-green, persisting from October until released by decay in spring ..... 5. *M. exalbescens*

    4. Upper bracts pectinate or dentate; lower bracts pectinate, usually more than twice as long as the adjacent pistillate flowers.

6. Plants often with U-shaped base if they grew from a turion, internodes usually visible between the exact whorls of leaves; bracts without a distinct lamina, the lower pinnatifid, the upper pectinate; turions clavate, dark yellow-green ..... 6. *M. verticillatum*

6. Plants often with a thick rhizome base, internodes often obscured by densely crowded, often alternate or inexactly whorled leaves; bracts with a distinct lamina, the lower more deeply toothed than the upper; overwintering buds if present, not clavate, arising from the rhizomes, or at the base of the stems ..... 7. *M. heterophyllum*

1. *Myriophyllum tenellum* Bigelow.

At first glance, plants of this species look much more like a rush or a reed than they do a *Myriophyllum*. The narrow, cylindrical stems are usually less than 10 cm high and have occasional alternate, scale-like leaves less than 2 mm long or at least nodes where they have been, unlike any rush or reed. Especially if the tops of these stems have flowering spikes with small, alternating, pinkish flowers, identification is certain. Recorded from the Ottawa River near Deep River, Constance Bay and Champlain Bridge, and from lakes in Quebec.

2. *Myriophyllum farwellii* Morong.

This is the only water-milfoil in this area that flowers under water. It can be distinguished readily when flowers are present, or later in the season when turions form (Aiken 1976). The species has been observed to form turions in August, at least a month before either *M. exalbescens* or *M. verticillatum* in the same area. The turion photographed in Figure 2 was from a plant collected in Ramsay Lake, Gatineau Park, Quebec, in August, 1974. This turion and others like it formed while the plant was being transported in a cooler for several days. The rest of the plants died - an initially unnerving occurrence as turions had not previously been recorded for this species. The turions formed remained dormant in a greenhouse pool until March, when they elongated and developed into plants with summer leaves.

When no flowers or turions are present, this species may be difficult to distinguish from *M. alterniflorum*, for the leaves may have similar lengths, colour and texture. It is usually possible to find leaves that are alternate rather than whorled in arrangement and sometimes evidence of much shorter turion leaves at the base of a *M. farwellii* plant. Recorded from Fortune, Harrington, Meech, Philippe and Ramsay Lakes in Gatineau Park, but not known from any rivers. Because it is always completely submersed and often the same colour as the brown stained water in which it grows, it is very easily overlooked.

3. *Myriophyllum alterniflorum* DC.

This species is distinguished easily by the alternate arrangement of the flowers and its very distinctive pollen that has large, asymmetrically arranged pores (Aiken 1978). When it is not flowering, the vegetative stems are characteristic if the leaves are very short, a condition that Pugsley (1938) distinguished as *M. alterniflorum* var. *americanum*. I collected this species with leaves 1-1.5 cm long, in the Ottawa River near Campbell's Bay, Quebec, in 1974. I also collected "var. *americanum*" from Lake George, New York, the same year, but became suspicious when by March, 1975, both

collections that had been growing side by side looked the same. This prompted an experiment in which a clone of the very narrow leafed plants was divided and grown on sand, peat and loam substrates for 72 days. The results are shown in Figure 7 and convincingly suggest that Pugsley's variety is no more than the result of a low nutrient environment (Aiken 1981). Although North American floras have suggested that leaves in this species are no more than 1.5 cm long, specimens collected in Greenland have leaves 1.5-3.5 cm long. There is never any turion-like structure associated with *M. alterniflorum* plants, and the submersed leaves are arranged in regular whorls, unlike *M. farwellii* with which it may be sometimes confused. Recorded from lakes in Gatineau Park and many places along the Ottawa River.

4. *Myriophyllum spicatum* L. Eurasian Water-milfoil.

Botany aside, for the last ten years the best way to distinguish this species has been by the lament from cottage and boat owners about miserable, dense weed beds that have appeared suddenly where water weeds had not been previously a nuisance. In all the situations checked, *M. spicatum* was the offender. However, a most interesting aspect of Eurasian Water-milfoil is what has been called its "boom and bust" cycle. Both around Washington, D.C., and Madison, Wisconsin, in places where man made no effort to control the weed, it

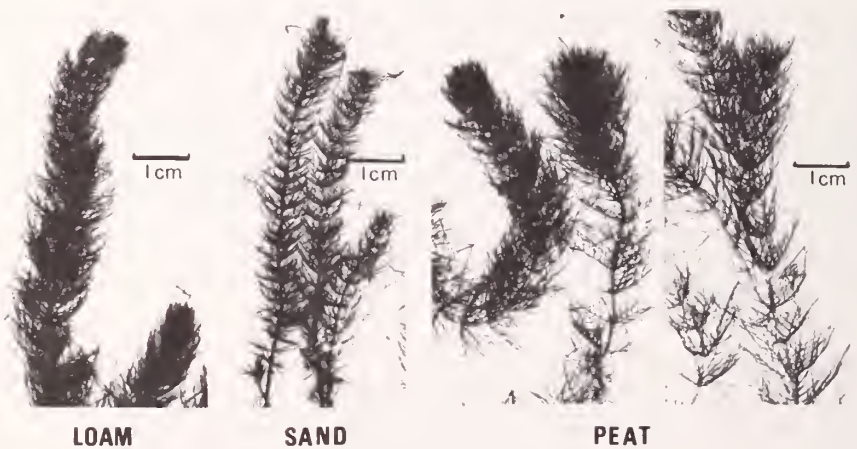

Figure 7. Myriophyllum alterniflorum. *Cuttings from a plant that looked like the plants grown on sand, were grown on three substrates for 72 days. The plants on sand grew little and retained their original appearance with leaves about 0.5 cm long. The plants on loam and peat grew much more, and the new leaves formed were much longer, sometimes to 7.5 cm.*

has been well documented that approximately ten years after extensive weed beds were first observed, they have disappeared mysteriously. Many attempts have been made to find the cause of this disappearance, but none of the proposed explanations is satisfactory (Bayley *et al.* 1968, Elser 1969, Carpenter 1980). While the Tennessee Valley Authority reduced dramatically the Eurasian Water-milfoil problem by using 2,4-D, some plants did remain. However, 1968 was ten years after the species became a nuisance in the waterway, and never again has it been necessary to use 2,4-D very extensively to control what had been a million dollar problem.

Since 1981 represented ten years since Eurasian Water-milfoil was observed in this area (I also observed it in a lock of the Rideau River at Smiths Falls, Ontario in October, 1971), it is hoped that "the bust" part of the cycle is occurring, and the problem will "just go away". In Ontario, it is possible to obtain a permit and apply weed killer to control aquatic plants, especially in recreational areas. It is also possible to buy weed killer without a permit and use it the way your neighbour did. While it is certain that in some areas, at least, weed killers have been used "to restore the recreational use of the water", it is not known to what extent this has been done. What is certain is that the impact of Eurasian Water-milfoil, with or without a followup impact of applied weed killer, has undoubtedly reduced species diversity in some lakes. Surprisingly few herbarium records of *M. spicatum* are available. It has been collected from lakes in Quebec and observed in the Ottawa and Rideau Rivers.

5. *Myriophyllum exalbescens* Fern.

The dark green turion leaves are unique to this species. They usually remain in position until early July, at least, and even after they have gone, it is usually possible to find the U-shaped base characteristics of a plant that has grown from a turion (Weber 1972). Leaves of this species vary in length from 0.5-4(4.5) cm long, although many keys suggest that the leaves are always 1.5 cm or more. Most specimens with very short leaves have been collected in the Arctic, but Figure 8 shows a very compact form of *M. exalbescens* that has many leaves less than 1.5 cm long. This specimen was collected in a fast backwater, opposite Barnhart Island in the St. Lawrence River. I puzzled over many specimens like this that have been collected in Ontario, and finally found this one that has developing turions that confirm identification. However, specimens of *M. exalbescens* growing in fast moving water do come to look like *M. alterniflorum*, and they are tricky to identify because it seems that the moving water holds the tops under, and they never flower. Recorded from most local rivers and many lakes, especially in Quebec.

Figure 8. Myriophyllum exalbescens *from fast flowing backwater of the St. Lawrence River. Many of the leaves are less than 1.5 cm long, and the compact appearance is like* M. alterniflorum. *The specimen was collected in September and developing apical and lateral turions confirm the identification.*

6. *Myriophyllum verticillatum* L.

This species is identified readily by the shape of the bracts in the flowering spike or by the presence of club-shaped turions that are a deep yellow-green (Weber and Nooden 1974). The turion leaves of this species (Fig. 6) are like smaller versions of the summer leaves, and when the turion elongates in the spring, the leaves elongate also and are difficult to distinguish from newly-formed summer leaves. The picture (Fig. 9) is of a *M. verticillatum* from a pond in Ottawa-Carleton. It shows just how variable the leaves and the leaf spacing and arrangement may be within the same plant. Some North American floras recognize different varieties in this species, depending on the lengths of the floral bracts. The character is very variable, even in one plant, especially if a stem is stranded and begins to develop terrestrial leaves, so that recognizing varieties on this character does not appear to be justified. Recorded from the Rideau and Ottawa Rivers, and lakes in Quebec.

7. *Myriophyllum heterophyllum* Michaux.

This species can be the most robust of water-milfoils in North America, with stems that are up to 1 cm in diameter. The flowering spikes with flat, leafy bracts are unambiguously identified in Eastern Canada. When flowers are not present, the very short internodes with leaves more than 2 cm long, closely crowded, sometimes alternate or not exactly whorled, are characteristic. This species dies back to turion-like buds at the base of the plant, but these buds are not known to be released from the parent or function as propagules. This species has been collected from the Ottawa River near Westmeath, but it has not been recorded from lakes in Quebec.

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Figure 9. Myriophyllum verticillatum *collected in a pond in Ottawa-Carleton. Note how variable the leaves and the leaf spacing and arrangement may be within the same plant.*

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Natural History Workshops at Carleton University

The Department of Biology at Carleton University, in cooperation with the School of Continuing Education, has launched a series of workshops in natural history for interested people in the Ottawa area. Based in the new Natural History Centre in the Tory Building at Carleton, the series will consist of modules designed to reflect the changing seasons. The modules will present the significance and relationships of the living world around us through discussions and outdoor workshops. The coming module is described below.

Winter, Snow and the Living World
February 21, 22, 23 and 24

Four days of discussions and workshops centering on snow ecology, the activities of animals above and below snow surfaces, and the significance of winter to these organisms. Morning sessions will be devoted to discussions, films and slide presentations in preparation for the afternoon field trips.

Day one:	Interpretation of snow surfaces and winter photography
Day two:	Wetlands in winter
Day three:	Beaver and hare activity
Day four:	Winter waterfowl.

Leaders: Dr. I.L. Bayly and Dr. V.E.F. Solman. Course Fee: $80. Enrolment is limited to 15 participants. Registration is with with the School of Continuing Education, Room 302, Administration Building, Carleton University, Ottawa K1S 5B6, telephone 231-6660.

Fall Birding along the St. Lawrence River

Bruce M. Di Labio

The National Museum of Natural Sciences was the departure point on October 1, 1983, for a birding trip to the St. Lawrence River between Morrisburg and Cornwall. The main objectives were waterfowl, shorebirds and gulls. In a convoy of five cars, the 12 birders left Ottawa shortly after 7 a.m..

A stop for coffee at Glen Becker produced a few Northern Harriers in a field across from the restaurant. The first real stop was the boat launch at Morrisburg. This could be classified as an unproductive stop because it produced only a few Double-crested Cormorants, a large lake freighter and a boatload of duck hunters. Things could only get better.

At Riverside Park, some shorebirds were found feeding on the mudflats, including Semipalmated Plover, Black-bellied Plover, Pectoral Sandpiper, Dunlin and Sanderling. Also in that area and in other places along the route there was a noticeable movement of Chickadees with several flocks of 15 or more moving past.

The stop at Ault Island was very productive; there were 400 Gadwall, 30 Blue-winged Teal, 120 American Wigeon, 60 Wood Ducks and a Pied-billed Grebe along the causeway. Several Water Pipits, Lesser Yellowlegs and Black-bellied Plovers were also seen, along with 16 Double-crested Cormorants and three Great Black-backed Gulls.

At the Cornwall Power Dam, two adult Little Gulls, 110 Bonaparte's Gulls, five Common Terns, and four Great Black-backed Gulls were observed along with numerous Ring-billed and Herring Gulls. In contrast to last year's 3000 Common Mergansers, none was found this year.

The official last stop was at the Hoople Creek mudflat near Ingleside. After a walk through fields and cattails, we saw two Baird's Sandpipers, about 40 Pectoral Sandpipers, five Least Sandpipers and 15 Dunlin. The previous Sunday there were 450 shorebirds compared to less than 75 on this trip.

The unofficial last stop (only three of the five cars) was at the Russell Sewage Lagoon, where one Golden Plover and one White-rumped Sandpiper were found. From there the group headed to Ottawa, arriving back in town at about 7:30 p.m..

The weather cooperated, being overcast in the morning and cloudy with sunny intervals in the afternoon. The final species count was 63, making it an interesting and worthwhile trip.

Coming Events

arranged by the Excursions and Lectures Committee
Paul Catling (996-1665), Chairman

Times stated for excursions are departure times. Please arrive earlier; leaders start promptly. If you need a ride, don't hesitate to ask the leader.

Tuesday 10 January 8:00 p.m.	ANNUAL BUSINESS MEETING Meet: Auditorium, National Museum of Natural Sciences, Metcalfe and McLeod Streets At the meeting, a motion to change the name of the Club to "Ottawa Field Naturalists" will be considered. The business meeting will be followed by *The Changing Forest*, an eighteen minute, award-winning, National Film Board presentation on the ecology of a forest on the southern fringe of the Laurentian Shield. Then there will be refreshments and an opportunity to meet other members and the various committee members.

Sunday
15 January
8:00 a.m.

WINTER BIRDING IN THE OTTAWA AREA
Leader: Bruce Di Labio (729-6267)
Meet: National Museum of Natural Sciences, front entrance, Metcalfe and McLeod Streets
Participants will visit Club feeders and check for overwintering ducks along the Ottawa River. Dress warmly, bring binoculars or scope and a snack on this half-day outing. The Dinobus will be provided free of charge for transportation, courtesy of the National Museum of Natural Sciences.

Saturday
28 January
8:00 a.m.

WINTER BIRDING IN THE LOW-POLTIMORE AREA
Leader: Bruce Di Labio (729-6267)
Meet: National Museum of Natural Sciences, front entrance, Metcalfe and McLeod Streets
Ravens are normally seen in this area, which can also be good for winter finches such as crossbills, and for Boreal Chickadees, and so forth. Bring binoculars, a lunch, and a hot drink for this all-day outing. Dress warmly. Transportation will be by private car.

Saturday
4 February
10:00 a.m.

TOUR OF CARLETON UNIVERSITY GREENHOUSES (ELBA)
Leader: Bill Illman
Meet: at the greenhouses; parking is available in Lot 3 across from the greenhouses in the southeast section of the campus opposite the Administration Building .
Bill is a botany professor at the university as well as a long-time Club member. He enjoys showing visitors the many treasures the greenhouses hold.

Saturday
11 February
7:30 a.m.

WINTER BIRD BUS TRIP, A JOINT OUTING WITH THE KINGSTON FIELD NATURALISTS
Leaders: Bruce Di Labio (729-6267) and members of the KFN
Meet: National Museum of Natural Sciences, front entrance, Metcalfe and McLeod Streets
Cost: none
The bus should reach Kingston by 10 a.m. and return to Ottawa about 6 p.m. The outing will probably include a visit to Amherst or Wolf Island. Dress warmly; bring binoculars and a hearty lunch. The National Museum of Natural Sciences will provide the Dinobus free of charge for this trip.

Tuesday
14 February
8:00 p.m.

OFNC (OFN?) MONTHLY MEETING
BIRD BANDING IN OTTAWA, ITS ROLE IN A NATIONWIDE ENDEAVOUR
Speaker: Joanne Dean
Meet: Auditorium, National Museum of Natural Sciences, Metcalfe and McLeod Streets
Joanne will discuss the various uses of bird banding, how it is done, and how the work of the Ottawa Group fits into the national effort. Her talk will be illustrated with slides. Joanne graduated in biology from Queen's University and has been bird banding in Ontario for the past seven years.

Saturday
18 February

CROSS COUNTRY SKIING IN ALFRED BOG
Leader: Don Cuddy
This trip requires experience in skiing; participants should be prepared to ski five to seven km on a forest trail. Reserve your place by calling the Club number (722-3050) before February 15.
Don has led two previous trips to Alfred Bog; this is your opportunity if you have not participated before.

N.C.C. Programs

These Sunday programs take place at the same time at both the Stony Swamp (western greenbelt) and Mer Bleue (eastern greenbelt) Interpretation Centres, and are scheduled to begin at 11 a.m., 1 p.m. and 3 p.m. For more information, call Stony Swamp (828-3620) or Mer Bleue (828-9714).

January 15	BIRDS OF A FEATHER How do birds survive in winter? How to attract them?
January 22	THE FOX AND THE HARE Learn how to recognize animal tracks in the snow.
January 29	BRRR... The story of ice and snow.
February 5	WINTER WETLANDS The marsh and the pond in winter.
February 12	COURTSHIP IN THE SNOW For many animals, February marks the beginning of the mating season. How does this take place?
February 19	OWLS
February 26	PLANTS IN WINTER

SNOWSHOES UNDER THE STARS Dress warmly and ready your snowshoes for a wintery evening walk. At the Mer Bleue Interpretation Centre only, from 7:30 to 9:00 p.m. on Saturday, January 28, and Saturday, February 25.

PRESCHOOL PROGRAM A special nature outing for youngsters from 3 to 5 years old accompanied by a parent at the Stony Swamp Interpretation Centre on the first Wednesday of each month from 10 to 11:30 a.m.

January 5 ANIMAL FEET: February 5 ANIMAL FOOD.

The National Capital Commission maintains a network of nature and cross-country ski trails. If you wish to receive a copy of the Urban and Greenbelt Trail Map and the Gatineau Park Winter Trails Map, please call 992-4321, or write: National Capital Commission, 161 Laurier Avenue West, Ottawa K1P 6J6.

DEADLINE: Material intended for the March-April issue must be in the Editor's hands before December 29.

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